

# The First Step: Planning

**A careful review of the system design and the site can help save you many costly problems during the installation process**

**By Jim Anderson, Ph.D., and Dave Gustafson, PE.**

Since this issue leads off the New Year, we thought it would be appropriate to start at the beginning of the installation process. As the snow piles up higher here in Minnesota, now is a good time to think about planning.

The first step if you are the installer and not the designer is to review the plans the designer has provided and the soils information provided by the site evaluator. This includes reading all the construction notes and plan specifications.

If from your experience you have questions about any of these aspects, or if something seems not right based on your experience, that is the time to contact the designer. In fact, some designers ask installers to notify them in advance when construction is to proceed so they can be available for questions and modifications.



**Soil evaluation is an important part of the planning process.**

## **Bid carefully**

From the design plans, you will develop your bid for the project, so it is essential to take all aspects of the design and soils information into account. We will never forget the time an installer told us about being asked to bid on a mound system for which the soil survey said the area was a borrow pit.

When he looked at the site, he declined to bid, because he knew the installation would be much more complicated than the design indicated. He took great pleasure in highlighting how his competitor lost money big-time because he didn't look into available information about the lot.

This just highlights that you should be thorough in your planning and investigation, before offering a bid or moving into the construction phase. It is interesting how often we hear, "I only need to be able to read a plan and to build what is on paper." Nothing could be further from the truth. Successful installers don't leave things to chance. Just like any other good businessperson, they investigate all aspects.

## **Know your soils**

Another area of the planning process is to read and evaluate soil boring logs and percolation test data. Here again, you do this to see if there is any evidence that may influence how or where the system should be constructed.



**It's essential to check for proper setback from the septic tank to the building.**

You need good soil skills to distinguish soil texture and soil colors. Texture relates to the size of the system, and color can indicate the presence of seasonally saturated soil. You need to know both how to read the information and how to recognize these features in the field. Again, it is amazing how many times installers or local regulators tell us that the installer does not need to know these characteristics.

The site map portion of the design or plan should show all relevant aspects of the site, including any easements, large trees, boulders, wetlands, water-supply wells and required setback distances. This should allow you to begin planning how the installation will proceed. It will also help you determine where you can stockpile ma-

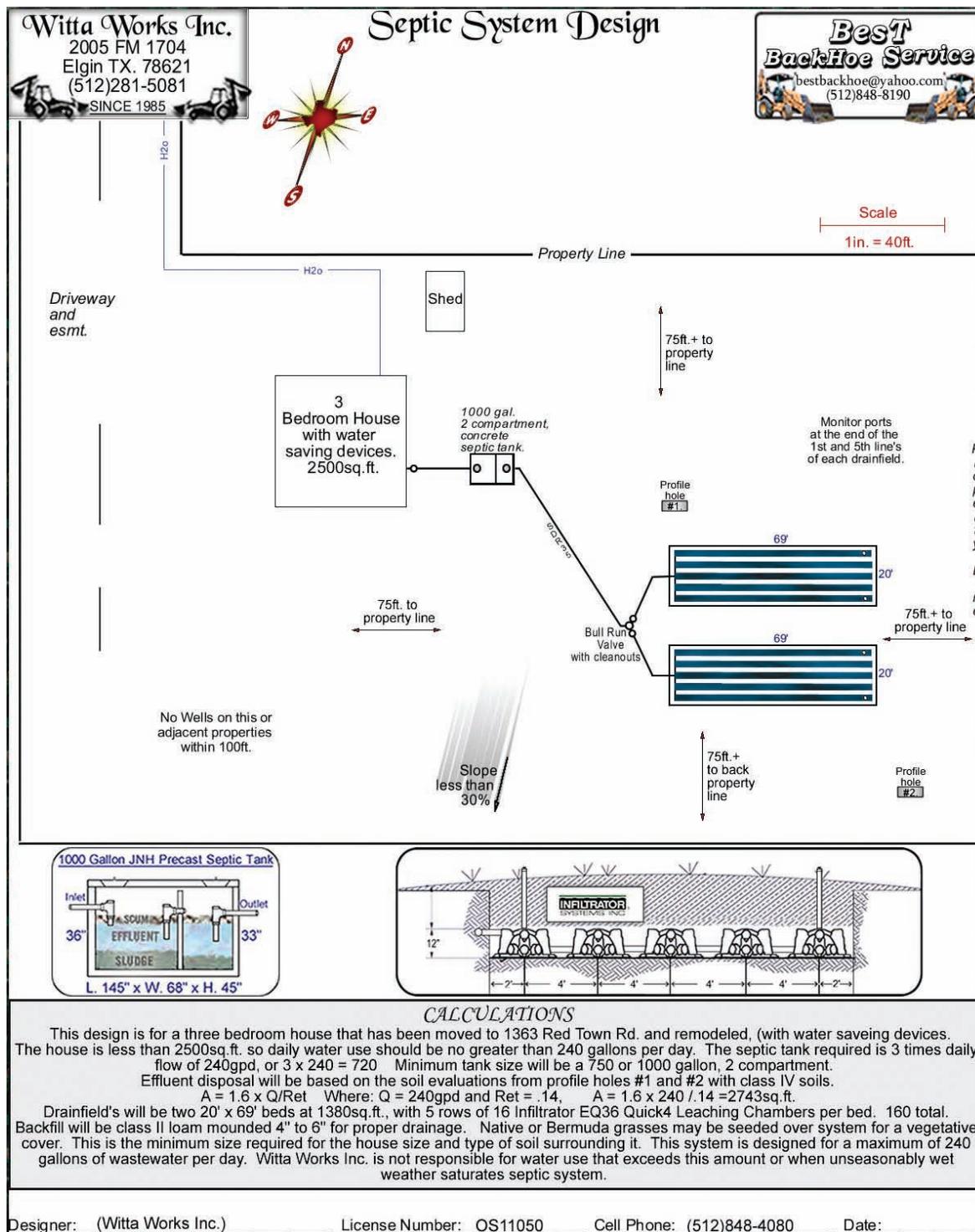
terials and how the septic tank or other tanks will be delivered.

All these items, with the relevant measurements, should be on the plan. While you can plan on this basis, you should check each of these measurements in the field before starting work. It is an expensive lesson when the local inspector shows up on the job site and highlights that you are five feet too close to the lake and you have to move everything.

## **Check the layout**

The overall site layout is important. The shape of the lot relative to contours, and the presence of natural or protected features such as wetlands, streams or existing structures, can restrict access to the site. Wetlands may require special permits to cross and special mitigation

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### Check elevations

The plan should also show a cross section of all the system components. Their finished elevations and grade elevations should be shown along with the existing elevations of nearby structures or features. Construction specifications are also to be provided here, and the profile should show that the system components meet any slope requirements or separation distances to any limiting soil condition, such as high water table, bedrock, or dense soil layers.

**If from your experience you have questions about any of these aspects, or if something seems not right based on your experience, that is the time to contact the designer.**

If other structures (such as the house) are to be built at about the same time, you should consult the other contractors. You may need to stage installation to coordinate with their work. (See our article in the November 2010 issue on protecting the system site from damage.)

Talking with the homeowner is also a critical planning step. Here is where you can find out what the owner considers important. Now is when you find that you need to work around that oak tree rather than cut it down; or that you have to avoid a perennial garden that is in one of your prime pathways for equipment.

Each site is different, and everyone has a little different view of what is important, so this discussion is essential. It is also a good opportunity to walk the owners through your approach to installation so they have a picture of what will take place.

There is much more we could say about planning, but this should demonstrate that planning is not an exercise in going through the motions. It is one of the most important steps in the installation process. ■

### A typical plan layout for an onsite treatment system.

efforts after construction and disturbance. These conditions will add time to the job and may limit your equipment choices.

The site map should also provide slope contours, and you should pay attention to them. At a minimum the contour interval should be every two feet, and every one foot is desirable. This allows you to evaluate any slope abnormalities you

need to consider during installation.

If a drainage way shows up on the contour maps and the system is proposed to be installed across it, you need to have a conversation with the designer. Since water will flow at the surface and below ground in that location, there is a high potential to flood the system out, and the design should be changed to avoid the problem.

Again, you need to check all this on the site, but a preliminary review can highlight specific areas that need investigation once you get there. Steep slopes may limit the type of equipment and the construction methods you can use. System type may also affect those choices. For example, you need to use small tracked equipment when installing a treatment mound.